Diagnosing melanoma by detecting microphthalmia expression in nucleus of cells.

DC B04 D16 S03
IN FISHER, D E
PA (DAND) DANA FARBER CANCER INST INC
CYC 21
PI WO 9936783 A1 19990722 (199937)* EN 49p
RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
W: AU CA JP
AU 9921149 A 19990802 (199954)
ADT WO 9936783 A1 WO 1999-US736 19990113; AU 9921149 A AU 1999-21149 19990113
FDT AU 9921149 A Based on WO 9936783
PRAI US 1998-71420P 19980114
AB WO 9936783 A UPAB: 19990914

NOVELTY - A method for the diagnosis of melanoma is new and comprises:

(a) contacting a biological specimen with a probe which selectively recognizes microphthalmia (Mi); and

(b) determining whether Mi is expressed in the specimen by the probe's binding to Mi, where the binding is indicative of Mi expression and the expression of Mi in a malignant cell is indicative of melanoma.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) a method for determining whether a malignant cell is a melanoma comprising, determining whether microphthalmia (Mi) is being expressed in the nucleus of the malignant cell by using a probe for Mi, where the expression of Mi is indicative of the malignant cell being a melanoma; and

(2) a kit for determining whether a malignant cell is a melanoma which comprises a probe for Mi and instructions for use.

USE - The method is useful for diagnosing and/or prognosing melanoma in individuals (claimed). Targeting **microphthalmia** (Mi), may also be useful in treating and/or diagnosing breast **cancer**.

The method is also useful for screening for and selecting compounds, that selectively react with Mi, which can then be used to provide selective targeting of the melanoma.

ADVANTAGE - The new, improved method is simple to use for the diagnosis of melanoma. The use of Mi also is useful for selectively targeting melanoma. Mi staining has advantages over cytoplasmic immunostains as it produces a nuclear pattern, and cellular architecture is not obscured, therefore aiding in the preservation of the tissue structure.

Dwg.0/8

INTERNATIONAL SEARCH REPORT

Inte ional Application No
PCT/US 99/00736

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G01N33/574

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	SATO, S. ET AL: "CBP/p300 as a co-factor for the Microphthalmia transcription factor" ONCOGENE (1997), 14(25), 3083-3092 CODEN: ONCNES;ISSN: 0950-9232, XP002104578 see the whole document	1-12
A	US 5 605 831 A (VIELKIND JUERGEN R) 25 February 1997 see abstract	1,5,8
A	US 5 009 995 A (ALBINO ANTHONY ET AL) 23 April 1991 see abstract	1,5,8
A	WO 97 39774 A (NOVOPHARM BIOTECH INC) 30 October 1997 see examples	1,5,8

-/--

[X] Further documents are listed in the continuation of box C. [X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier document but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
2 June 1999	23/06/1999

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Moreno, C

1

Form PCT/ISA/210 (second sheet) (July 1992)

PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : G01N 33/574

A1

(11) International Publication Number: **WO 99/36783**

(43) International Publication Date: 22 July 1999 (22.07.99)

(21) International Application Number: PCT/US99/00736

(22) International Filing Date: 13 January 1999 (13.01.99)

(30) Priority Data:
60/071,420 14 January 1998 (14.01.98) US

(71) Applicant: DANA–FARBER CANCER INSTITUTE, INC. [US/US]; 44 Binney Street, Boston, MA 02115 (US).

(72) Inventor: FISHER, David, E.; 510 Ward Street, Newton, MA 02159 (US).

(74) Agents: EISENSTEIN, Ronald, I. et al.; Peabody & Brown, 101 Federal Street, Boston, MA 02110 (US).

(81) Designated States: AU, CA, JP, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).

Published
With international search report.
Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

What is claimed:

1. A method for diagnosing melanoma which comprises:

(a) contacting a biological specimen with a probe which selectively recognizes microphthalmia (Mi); and

(b) determining whether Mi is being expressed in the specimen by the probe's binding to Mi, wherein said binding is indicative of Mi expression and, wherein the expression of Mi in a malignant cell is indicative of melanoma.

2. The method of claim 1, wherein the probe is an antibody for Mi.

3. The method of claim 1, wherein the probe the level of mRNA expressing Mi.

4. The method of claim 1, wherein the biological specimen is a malignant cell.

5. A method for determining whether a malignant cell is a melanoma comprising:

determining whether microphthalmia (Mi) is being expressed in the nucleus of the malignant cell by using a probe for Mi, wherein the expression of Mi is indicative of the malignant cell being a melanoma.

6. The method of claim 5, wherein the probe is an antibody for Mi.

7. The method of claim 6, wherein the antibody is a monoclonal antibody.

8. A kit for determining whether a malignant cell is a melanoma which comprises a probe for Microphthamia (Mi) and instructions for use.

9. The kit of claim 8, wherein the probe comprises 2 primers that permit the synthesis of human Mi and the kit further comprises reagents to carry out the polymerase chain reaction.

10. The kit of claim 8, wherein the probe is an antibody that specifically binds to human Mi, and the kit further comprises reagents that permit one to determine whether the antibody has bound to Mi.

11. The method of claim 5, wherein the level of Mi present in the nucleus is measured and compared to a base line control level of Mi.

12. The method of claim 5, wherein the activation state of the Mi in the nucleus is determined.